

Amendments to the Claims

Please amend the claims in the subject application as reflected in the following listing.

1. (Previously Presented): A fractional distillation process which comprises:

(a) passing a liquid comprising a first component and a second component onto an upper first tray located in a fractional distillation column containing a plurality of vertically spaced apart fractionation trays operated at fractionation conditions which cause vapor to rise through decking areas provided on the trays while liquid is collected in at least one downcomer portion of each tray, the liquid collected in the downcomer of the first tray exiting the downcomer through openings located in a lower portion of the downcomer;

(b) intercepting liquid, which is passing downward from said openings in the lower portion of the downcomer of the first tray, on a central portion of an antipenetration pan located under said openings and between the first tray and a lower, second tray, the antipenetration pan comprising two arms extending away from the central portion and ending at points located at least one-half the width of the central portion away from said central portion;

(c) discharging a first portion of the liquid which is intercepted by the central portion of the antipenetration pan onto the decking area of the second tray from each of the two arms of the antipenetration pan; and

(d) passing a second portion of the liquid which is intercepted by the antipenetration pan downward through openings in the central portion of the antipenetration pan.

2. (Cancelled)

3. (Previously Presented): The process of claim 1 further characterized in that liquid is discharged from the arms of the antipenetration pan in a direction substantially parallel to a downcomer of the second tray.

4. (Previously Presented): The process of claim 1 further characterized in that the central portion and each of the two arms of the antipenetration pan are rectangular.

5. (Original): A fractional distillation process which comprises:

(a) passing a liquid comprising a first volatile compound and a second volatile compound downward through a fractional distillation column containing a plurality of vertically spaced apart multiple downcomer fractionation trays and operated at fractionation conditions which cause vapor to rise through decking areas provided on the trays while liquid is collected in a trough-shaped downcomer present on each tray, with liquid which has been collected in said downcomer exiting the downcomer through grouped openings located in a lower portion of the downcomer;

(b) discharging descending liquid from the openings in the lower portion of the downcomer of the upper first tray upon a plurality of antipenetration pans located between the first tray and a lower second tray, with the antipenetration pans comprising a central portion located under the grouped openings of the downcomer of the first tray; and

(c) discharging liquid from the central portion of the antipenetration pans onto the decking area of the second tray and also discharging liquid onto the decking of the second tray from each of two arms which extend outward from the central portion of the antipenetration pan in directions parallel to a downcomer of the second tray.

6. (Previously Presented): The process of claim 5 further characterized in that the number of antipenetration pans per tray is greater than the number of downcomers per tray.

7. (Previously Presented): The process of claim 5 further characterized in that the downcomers of the second tray are substantially perpendicular to the downcomers of the first tray.

8. (Previously Presented): The process of claim 5 further characterized in that at least one-third of the liquid which is discharged upon an antipenetration pan from the upper first tray is in turn discharged from the antipenetration pan via the two arms of the antipenetration pan.

9 -12 (Cancelled)

13. (Original): An apparatus for performing fractional distillation in a fractionation column, which apparatus comprises:

(a) an upper first tray and a lower second tray, with both the first and second trays comprising at least two trough-shaped downcomers and at least one elongated vapor-liquid decking area located between the downcomers, and with the downcomers of the first tray being oriented differently than the downcomers of the second tray, with the downcomers of each tray having at least two groups of spaced apart liquid outlets in the bottom of the downcomers; and,

(b) at least two antipenetration pans mounted between the bottom of the downcomers of the first tray and the top of the vapor-liquid decking area of the second tray, with one antipenetration pan being located under each of the groups of liquid outlets in the first tray, the antipenetration pans comprising a perforated horizontal first platform having a major axis perpendicular to the downcomers of the second tray and an overlying generally U-shaped second platform attached to the first platform, the second platform having a major axis parallel to the downcomers of the second tray and ends located beyond the first platform.

14. (Original): The apparatus of claim 13 further characterized in that the first platform has raised end pieces parallel to the downcomers of the second tray.

15. (Original): The apparatus of claim 14 further characterized in that the length of the second platform is equal to 100 to 200% of the length of the first platform.

16. (Currently Amended): An apparatus for performing fractional distillation in a fractionation column, the apparatus comprising:

(a) an upper first tray and a lower second tray, with both the first and second trays comprising at least one elongated downcomer and two vapor-liquid decking areas adjacent the downcomer, the downcomer of the first tray having at least one group of liquid outlets in the bottom of the downcomer;

(b) an antipenetration pan being mounted at an intermediate level between the downcomer of the first tray and the decking areas of the second tray, the antipenetration

pan comprising a perforated, planar, central portion and at least two substantially planar extensions, wherein the central portion of the antipenetration pan being substantially parallel to the decking areas of the second tray is located under the group of liquid outlets of the downcomer of the first tray, and the substantially planar extensions projecting outward from the central portion of the antipenetration pan over and substantially parallel to areas of the decking of the second tray which are not under a group of liquid outlets.

17-18. (Cancelled):

19. (Previously Presented): The apparatus of claim 16 wherein the downcomer of the first tray being oriented transverse to the downcomer of the second tray.

20. (Previously Presented): The apparatus of claim 16 further comprising a plurality of liquid outlets and a plurality of antipenetration pans, there being no more than one antipenetration pan located under a group of liquid outlets and no more than one group of liquid outlets above an antipenetration pan.

21. (Previously Presented): The apparatus of claim 16 further comprising a raised end piece extending upwardly from an edge of the antipenetration pan.

22. (Previously Presented): The apparatus of claim 16 further comprising a baffle extending upwardly from the central portion of the antipenetration pan.

23. (Previously Presented): The apparatus of claim 16 wherein the extensions are aligned parallel to the downcomer of the second tray.

24. (New): An apparatus for performing fractional distillation in a fractionation column, the apparatus comprising:

(a) an upper first tray and a lower second tray, with both the first and second trays comprising at least one elongated downcomer and two vapor-liquid decking areas adjacent the downcomer, the downcomer of the first tray having at least one group of liquid outlets in the bottom of the downcomer;

(b) an antipenetration pan being mounted at an intermediate level between the downcomer of the first tray and the decking areas of the second tray, the antipenetration

pan comprising a perforated, planar, central portion and at least two, perforated, substantially planar extensions, wherein the central portion of the antipenetration pan being substantially parallel to the decking areas of the second tray is located under the group of liquid outlets of the downcomer of the first tray, and the substantially planar extensions projecting outward from the central portion of the antipenetration pan over areas of the decking of the second tray which are not under a group of liquid outlets.